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2004/2005 Conservation Requirements for 3Ps Cod

Report to the Minister of Fisheries and Oceans

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LETTER TO THE MINISTER

January 9, 2004

The Honourable Geoff Regan, P.C., M.P.
Minister of Fisheries and Oceans
200 Kent Street
Ottawa, ON K1A 0E6

Dear Minister,

As part of its ongoing mandate, the Fisheries Resource Conservation Council (FRCC) presents its report on 2004/2005 Conservation Requirements for 3Ps Cod. Our recommendations are based on the 3Ps cod Stock Status Report (SSR) as presented by departmental scientists and formal consultations with industry stakeholders in Harbour Breton and Sunnyside, NL.

Stakeholders were invited to comment on all groundfish stocks. The Council has chosen to report on those species that have SSRs completed and for which information was provided at public consultations.

The overall state of 3PS cod could be qualified as stable with modest growth. Both scientific data and fishermen's knowledge affirm that there has been an increase in the biomass. Scientific evidence in 2003 shows however, a slower growth than estimated in the prior year. The Council also noted an improvement in that the proportion of the TAC taken from Placentia Bay has decreased. The Council feels however, that the removals from Placentia Bay should be further reduced to allow its sub-population to be harvested in a sustainable fashion.

The SSR indicates two relatively large year-classes (1997-98) and while these year-classes are currently contributing to growth they are comprised of relatively speaking, young, small fish. There is as yet little evidence of subsequent strong year-classes since 1998.

Although the Council believes that the stock could sustain a modest increase in catch in the short term, it is not yet sure that the stock would continue to grow if the harvest reached 20,000t. Fishermen were in favor of an increased harvest based both from their perception of stock trajectory and for economic reasons. Most stakeholders agree however, that past mistakes of large annual increases in the TAC not be repeated and that the TAC be limited to 20,000t. Because of the uncertain signals of a number of stock indicators, the uncertainties raised in the scientific advice and because of the apparent low recruitment since 1998, the FRCC recommends that the 2004/2005 TAC for 3Ps cod be set at 15,000t, a level similar to that of recent years. Other recommendations and rationale are provided in the attached report.

In 2002 the FRCC provided advice on the 3Ps stocks of American plaice, haddock, pollock, skate (3LNOPs), and witch. The FRCC has received no new Stock Status Reports for these species this year. **The FRCC confirms that all recommendations for these fisheries made in 2002 remain valid and no changes are recommended.**

At consultations, no significant new facts emerged. The industry did however, repeat their request for an experimental directed fishery for American plaice in Placentia Bay. They argued that by-catches in gillnets indicated a fair abundance and that problems with by-catch of crab in flounder nets would not be a problem in Placentia Bay. They were adamant that any fishery should be available for general participation rather than be initially explored by a sentinel fishery. **The FRCC however, continues to advise that focused studies be first conducted before any fishery is permitted. The FRCC encourages the industry to continue to confer with DFO Science as to how these studies could best be conducted.**

The monkfish harvest in 3LNOPs has increased markedly and given the review of the SSR, the Council feels that it is of value to provide some feedback on this stock. In the 1990s, monkfish were mostly caught as a by-catch in the gillnet skate fishery. Research vessel surveys suggest that monkfish distribution is continuous to the south and west of St. Pierre Bank, although the degree of mixing with monkfish on the Scotian Shelf is unknown. The absence of young fish in the catch and in the surveys, combined with the absence of reporting of egg veils from

the 3LNOPs area suggest that recruits may come from spawning elsewhere. Therefore, the biomass in the area may not be a biologically separate unit.

As a result of increased demand and higher market prices, landings of monkfish in recent years have increased sharply from 200t in 2000, to 800t in 2001, 2,350t in 2002 and 2,800t in 2003. There has been a correspondingly large increase in the number of vessels involved in the fishery. Research surveys suggest that the biomass has increased, but not as much as the catch. The relative exploitation rate (catch/survey biomass) increased four fold over the past five years. The FRCC doubts that such a continued increase in fishing effort is sustainable. Stakeholders did not provide comments on monkfish at the FRCC consultations in November. **The FRCC recommends that DFO works jointly with the monkfish harvesters and industry to assess the potential of the fishery and to evaluate management measures needed to ensure a sustainable fishery**.

The FRCC urges the fishing industry to operate their fishing operations in a responsible manner in order to avoid any wasteful practices. The Council is being very prudent in its advice on 3Ps cod and believes that all parties must take reasonable measures to maximize the likelihood that this stock will continue to rebuild.

Sincerely,

Jean Guy d'Entremont

Jean Guy d'Entremont
Chairman

COD - 3PS

PERSPECTIVE

Currently the largest cod fishery in Atlantic Canada, the management area for this stock extends from Cape St. Mary's to west of Burgeo Bank, and south over St. Pierre Bank to the edge of the Laurentian Channel. The stock is composed of a number of sub-components whose relationship is not well understood. Seasonal migrations both within the stock from the offshore to the inshore and back, as well as migrations across stock management boundaries confound the understanding of the dynamics of this stock.

Catches from this stock have supported an inshore fixed gear fishery in southern Newfoundland for centuries. Fish are also caught offshore on the St. Pierre and Burgeo Banks, among others. Prior to the extension of Canadian jurisdiction, this stock was heavily exploited by non-Canadian fleets, mainly from Spain. Fishing effort by Canada and France peaked in 1988 with landings of 59,000t.

In August 1993, the Council recommended that fishing be discontinued and the fishery was closed by DFO in September 1993.

In November 1994, the Council recommended that there be no directed fishing for 3Ps cod in 1995 and that by-catches be kept to the lowest possible level. The Council's recommendations for 1996 were for a continued moratorium and a significantly expanded Sentinel Fishery. In 1997 the FRCC recommended a limited commercial fishery with a TAC of 10,000t. In March 1998, the Council recommended that the TAC for this stock be set at 20,000t, but that measures be taken to disperse the total catch over the fishing year to minimize impacts on stock sub-components. In March 1999, based on the positive outlook in the stock status report and the optimistic views of industry, the FRCC recommended that the TAC be set at 30,000t. Additional recommendations were made that were intended to enhance the age structure by increasing the survival rate of older fish.

In 2000, based on a revised outlook for the stock the FRCC recommended the TAC be reduced to 20,000t. In addition, the FRCC recommended the closure of several known spawning areas. For 2001/2002, the FRCC recommended the TAC be set at 15,000t for 2 years. The Minister implemented a one year TAC of 15,000t for 2001/2002. The FRCC expressed strong views about the lack of sustainable conservation measures in this stock. In 2002/2003 and 2003/2004 the TAC was maintained at 15,000t.

ANALYSIS

The FRCC conducted public consultations in Harbour Breton and Sunnyside in November 2003. Fishermen, particularly in the west of the area, agreed with the general stock trajectory noted in the SSR. In the west, there was a general feeling that catch rates had increased and that fish were returning to their pre-moratorium grounds. However, in the eastern portion of 3Ps there was concern that fish sizes were becoming smaller and that there were few large spawners. The feeding and condition of cod were reported to be good. There was general agreement from industry that a TAC increase to 20,000t be implemented in 2004/2005 based on positive catches rates. There were concerns expressed about increasing numbers of harp and hooded seals in the western area.

It is the view of the FRCC that the Stock Status Report (SSR) represents an unbiased view of the stock status and of uncertainties related to the assessment.

Based upon the SSR the FRCC notes:

- Spawner biomass is estimated to be between 82,000t and 185,000t using the same 5 model formulations used in 2001 and 2002. All formulations indicated increases in SSB since 2001 though absolute amounts are uncertain and model-dependent. The results were consistent with last year's in that deterministic predictions based upon most formulations showed increasing spawner biomass between 2002 and 2005, but of a smaller magnitude. Three of the formulations indicate a declining

SSB by 2006 with a TAC of 10,000t or 15,000t. Four of the five formulations show a decline by 2006 with a TAC of 20,000t. The increases in spawning biomass result from the good 1997 and 1998 year-classes entering the spawning population but these fish are maturing at an earlier age. This trend is considered to be generally unfavorable. The projected spawning biomass decreases in 2006 result from the succeeding year-classes (on early indications) being smaller.

- During the 1990's 3Ps cod matured at younger ages. Low age at maturity may indicate stress in fish populations. Female age at maturity was again low in 2002. Size at age has increased somewhat on young ages (2-3) from the mid-1990's. There was no clear trend on older ages, but these have been highly variable from year to year. Condition is recorded to be normal.
- For the stock as a whole, the mid range exploitation rate was about 5% by numbers and about 10% by weight. However, these varied substantially between formulations. The mid range values are close to target for this stage of the recovery, but local exploitation rates in Placentia Bay, although lower in 2002, remain too high at the 20%. Exploitation in other areas appears to be substantially lower, in particular in the eastern St. Pierre Bank-Halibut Channel areas.
- Estimates of recruitment (numbers at age 3) show a general downward trend over the period 1959 to 1996 with year-classes from 1993 to 1996 being particularly low. However, the 1997 and 1998 year-classes appear to be relatively strong though less so than was believed in the assessment provided in 2002.
- Cold-water conditions in the early 1990's were associated with poor recruitment. Warmer conditions and relatively large numbers of spawners from the 1989 and 1990 year-classes were associated with the strong year-classes of 1997 and 1998. However, in 2000 and 2001 there were declining numbers of larger fish in at least some stock components and colder conditions have prevailed since 2001.

Overall, the 3Ps cod stock continues to show growth potential in the coming years. The 1997-1998 year-classes appear to be the strongest in many years. However, the reductions of older fish (the 1989 and 1990 year-classes) since 1997, and evidence of cooling, suggests that reproductive potential may be reduced after 1999. Early indications are that the 2000-2002 year-classes are not strong and consequently the 1997-1998 year-classes may be essential to sustain the fishery for the next decade.

The over-riding long-term strategy for the 3Ps cod stock is to conserve and rebuild the stock to its historical level in order to provide for the long-term sustainable utilization of the resource and the ecosystem upon which it depends. In particular, the goals are to:

- Rebuild – to rebuild the spawning stock biomass (ages 6+) of all stock components to historical high biomass and stable fisheries (the 1960s).
- Conserve – to conserve the resource for the fishery by avoiding over-exploitation of sub-components and protecting spawning and juvenile fish.
- Restore – to restore the geographical and age distribution of the stock.

How well are these long term goals being met? Both the SSR and the experience of fishermen suggest that overall the stock has increased substantially from the lows seen during the moratorium. However, there is as yet considerable uncertainty as to the precise status of the 3Ps cod stock on the rebuilding curve. This is because of the short time-series of data available post moratorium lead to inevitable uncertainty in the scientific assessment and fishermen's perceptions. The suite of technical management measures appears to have helped conserve both small fish and large fish. Attempts to restore all sub-components have however, been less successful. Throughout the post moratorium period, a large proportion of the TAC (up to 50%) has come out of 3Psc (Placentia Bay) and has lead to a rapid depletion of this sub-component. The exploitation rates on the resident population have been higher than would be consistent with sustainable harvest of this component. Moreover, although exploitation rates have reduced in response to management measures, at 20% removals by numbers, they are still higher than the 10% likely to be needed to restore this sub-component. There is thus a need for additional efforts by management and industry to find ways to progressively reduce fishing intensity in this area.

Apart from achieving the long-term goals for the 3Ps cod, its management also needs to be sensitive to the need to minimize mortality on migrants from adjacent cod stocks which currently are seriously depleted. The ongoing closures on Burgeo Bank and the recent closure of 3Psa appear adequate to meet this objective and should be maintained.

In the light of previously held consultations on the 3Ps Fisheries Resource Conservation Plan, the Council considers that the TAC setting strategy should emphasise stability and stock rebuilding. The FRCC is also aware that the stock assessment is uncertain. Consequently the FRCC advised strategy for TACs setting is that, where appropriate, TACs should be changed by increments of 5,000t. Increases should only be considered when it is believed that the increase can be sustained for a reasonable period and when indicated by several years of encouraging indices and indicators. TACs would be reduced when consistent evidence of future stock decline is evident. The industry generally agrees with this approach.

The FRCC believes that the 3Ps cod stock has been rebuilding and that the recruitment of the 1997-1998 year-classes is predicted to increase the stock biomass over the short term. The FRCC cautions however, that from first indications, subsequent year-classes appear to be relatively weak. Consequently, the 1997-1998 year-classes will likely have to support the fishery for several years and at the same time have the opportunity to reproduce and provide the recruitment for the fishery of the future. Based on the current analysis, these year-classes are supporting a higher and higher proportion of the catch for all gear types in the fishery. This trend is predicted to continue over the next few years. Current projections indicate that the spawning stock biomass will likely decline by 2006 at a TAC of 20,000t. Overall most other stock indicators (sentinel catch rates, logbook catch rates < 35', DFO surveys, GEAC biomass index) show stable or declining trends. The FRCC maintains that stock rebuilding should continue to be the primary objective for the stock.

The FRCC recommends that the TAC for 2004/2005 for 3Ps cod remain at 15,000t.

The FRCC has made a number of specific conservation recommendations for this stock in past years including closures of areas and of all fisheries that coincide with concentrated spawning. These measures were designed to avoid the catch of older fish and to help relieve pressure on the Placentia Bay stock. Generally these have proven their value and should be maintained. The high exploitation rate in Placentia Bay remains a persistent problem due to the historic distribution of harvesting effort and the suitability of the Bay as an environment for fishing by smaller vessels. While reductions have been achieved in recent years the situation is still far from satisfactory. **FRCC recommends that DFO management and industry engage in finding management approaches that progressively reduce this exploitation rate towards 10% while ensuring that the fishery can be conducted in a safe fashion and without undue risk to older spawning fish.**

Stock assessments have been based on both bank and coastal sub-component data. Large proportions (to 50%) of catch have come from Placentia Bay, whereas the dominant model indices (RV and GEAC trawl surveys) are derived from the banks. There is potential for bias in this melding of data, and resultant uncertainty in spawner biomass of the various regions, in particular St. Pierre Bank and its adjacent regions.

The FRCC recommends that at the next comprehensive stock assessment of 3Ps cod, the spawner abundance be determined for the major regions of the full stock area, in particular for St. Pierre Bank, and that alternative survey and assessment methods be considered.

To assist with understanding the causes of the high exploitation rate in Placentia Bay, **the FRCC recommends that DFO management provide a detailed analysis of the composition of the fishery in 3Psc.**

Given the predominance of gillnet fisheries in the whole 3Ps area, at approximately 80%, **the FRCC considers it would be prudent to conduct a study on discard and drop-off rates in this fishery and to explore the extent of ghost-net fishing.**

Conventional tagging experiments are essential for providing data on regional exploitation rates and for better understanding migrations between sub-components and between stocks. **Therefore, the FRCC recommends the continuance of the 3Ps cod tagging program.**

The FRCC believes that the potential for further growth in this fishery will depend critically on the recruitment observed in the next few years. However, the FRCC cautions that the continued health and future potential yield of the 3Ps cod fishery could be undermined by discarding or by concentrating of effort on stock components (such as in Placentia Bay) and excessive targeting of specific year classes. With the recruitment of the strong 1997 and 1998 year-classes, discards may be a problem in the coming year. **FRCC urges that responsible fisheries practices continue to be implemented for this stock and that vigilance is**

required by fishermen to ensure that these principles are upheld.

The FRCC also considers it critical for DFO to ensure close monitoring of the fishery on an ongoing basis.

If progressively, these problems cannot be resolved by suitable management measures and good practice in the industry, then there may be no alternative to reducing the TAC in order that all ages and subcomponents of the stock are adequately protected.

Sources

DFO Science

SSR 2003/04 Subdivision 3Ps cod

FRCC Consultations

The FRCC held public consultations on this stock in:

Harbour Breton, NL (November 25, 2003)
Sunnyside, NL (November 26, 2003)

Written Briefs

By e-mail from Riley Feaver of McCallum, NL.

APPENDICES

FRCC Terms of Reference

1. Introduction

The Government of Canada is committed to a more comprehensive approach to the conservation and management of our fisheries resource. This approach demands a better understanding of complex fisheries ecosystems - the interaction of fish with other species, predator-prey relationships, and also changes in the marine environment like ocean currents, water temperatures and salinity.

The Government of Canada is also committed to a more effective role in decision-making for those with practical experience and knowledge in the fishery.

The Minister of Fisheries and Oceans has established the Fisheries Resource Conservation Council (FRCC) as a partnership between government, the scientific community and the direct stakeholders in the fishery. Its mission is to contribute to the management of the Atlantic fisheries on a 'sustainable' basis by ensuring that stock assessments are conducted in a multi-disciplined and integrated fashion and that appropriate methodologies and approaches are employed; by reviewing these assessments together with other relevant information and recommending to the Minister total allowable catches (TACs) and other conservation measures, including some idea of the level of risk and uncertainty associated with these recommendations; and by advising on the appropriate priorities for science.

2. Definition of Conservation

Fisheries conservation is that aspect of the management of the fisheries resource which ensures that its use is sustainable and which safeguards its ecological processes and genetic diversity for the maintenance of the resource. Fisheries conservation ensures that the fullest sustainable advantage is derived from the resource and that the resource base is maintained.

3. Council Objectives

3.1 To help the government achieve its conservation, economic and social objectives for the fishery.The conservation objectives include, but are not restricted to:

3.1.1 rebuilding stocks to their 'optimum' levels and thereafter maintaining them at or near these levels, subject to natural fluctuations, and with 'sufficient' spawning biomass to allow a continuing strong production of young fish; and,

3.1.2 managing the pattern of fishing over the sizes and ages present in fish stocks and catching fish of optimal size.

3.2 To develop a more profound understanding of fish-producing ecosystems including the inter-relationships between species and the effects of changes in the marine environment on stocks.

3.3 To review scientific research, resource assessments and conservation proposals, including, where appropriate, through a process of public hearings.

3.4 To ensure that the operational and economic realities of the fishery, in addition to scientific stock assessments, are taken into account in recommending measures to achieve the conservation objectives.

3.5 To better integrate scientific expertise with the knowledge and experience of all sectors of the industry and thus develop a strong working partnership.

3.6 To provide a mechanism for public and industry advice and review of stock assessment information.

3.7 To make public recommendations to the Minister.

4. Mandate and Scope

4.1 The Fisheries Resource Conservation Council will address these objectives by bringing together industry, DFO science and fisheries management, and external scientific and economic expertise in one body.

4.2 The Council will:

4.2.1 advise the Minister on research and assessment priorities;

4.2.2 review DFO data and advise on methodologies;

4.2.3 consider conservation measures that may be required to protect fish stocks;

4.2.4 review stock assessment information and conservation proposals, including through public hearings, where appropriate; and,

4.2.5 make written public recommendations to the Minister on TACs and other conservation measures.

4.3 The Council may recommend any measures considered necessary and appropriate for conservation purposes such as TACs, closure of areas to fishing during specific periods, approaches to avoid catching sub-optimal sized fish or unwanted species, and restrictions on the characteristics or use of fishing gears.

4.4 The Council's scope includes Canadian fish stocks of the Atlantic and Eastern Arctic Oceans. In the first instance, the Council will address groundfish, and then subsequently take on responsibility for pelagic and shellfish species.

4.5 The Council may also advise the Minister on Canada's position with respect to straddling and transboundary stocks under the jurisdiction of international bodies such as the Northwest Atlantic Fisheries Organization (NAFO).

5. Size, Structure and Make-Up

5.1 The Council will consist of not more than 14 members with an appropriate balance between 'science' and 'industry'.

5.2 Members are chosen on merit and standing in the community, and not as representatives of organizations, areas or interests.

5.3 'Science' members, are drawn from government departments, universities or international posts, and are of an appropriate mix of disciplines, including fisheries management and economics.

5.4 'Industry' members are knowledgeable of fishing and the fishing industry and understand the operational and economic impacts of conservation decisions.

5.5 All members of the Council are appointed by the Minister.

5.6 All members, including the Chairperson, are appointed for a three year term; terms can be renewed.

5.7 Members appointed from DFO serve 'ex officio'.

5.8 Members have to disclose any interest in the Atlantic or Eastern Arctic fishery and take appropriate measures so as to avoid potential or real conflict of interest situations during the term of appointment.

5.9 The four Atlantic Provinces, Quebec and Nunavut may each nominate one delegate to the Council. These delegates have access to the Council's information, and may participate fully in meetings, but will not be asked to officially endorse the formal recommendations to the Minister.

5.10 The Council is supported by a small Secretariat, to be located in Ottawa. The Secretariat will:

5.10.1 provide administrative support for the functioning of the Council;

5.10.2 provide a technical science and fisheries management support;

5.10.3 organize Council meetings;

5.10.4 record decisions of the Council;

5.10.5 undertake a professional communications function for the Council, providing a central point for communications to and from the Council; and

5.10.6 undertake such other matters as from time to time might be appropriate.

5.11 The Chairman may appoint an Executive Committee, consisting of the Chairman, Vice-Chairman, and three other Members.

5.12 In addition, the Chairman may, from time to time, strike an 'ad hoc' committee to deal with a specific issue.

6. Activities:

6.1 Reviews appropriate DFO science research programs and recommends priorities, objectives and resource requirements.

6.2 Considers scientific information - including biology, and physical and chemical oceanography, taking into account fisheries management, fishing practices, economics and enforcement information.

6.3 Conducts public hearings wherein scientific information is presented and/or proposed conservation measures/options are reviewed and discussed.

6.4 Recommends TACs and other conservation measures.

6.5 Prepares a comprehensive, long-term plan and a work plan for the Council which are reviewed annually at a workshop with international scientists and appropriate industry representatives.

6.6 Ensures an open and effective exchange of information with the fishing industry and contributes to a better public understanding of the conservation and management of Canada's fisheries resource.

FRCC MEMBERSHIP:

Members:

Jean Guy d'Entremont, Chairman
Maurice Beaudin
Guy Cormier
Brad de Young
Gabe Gregory
Nick Henneberry
Douglas Johnston
Jean-Jacques Maguire
Paul Nadeau
John Pope

Provincial Delegates:

Carey Bonnell, Nunavut
Mario Gaudet, New Brunswick
David MacEwen, Prince Edward Island
Pierre Bédard, Québec
Tom Dooley, Newfoundland and Labrador
Clary Reardon, Nova Scotia

Ex Officio:

Gilles Belzile
Barry Rashotte
David Gillis

Secretariat:

Arthur Willett, Executive Director
Tracey Sheehan
Helena Da Costa
Debra Côté

Acronyms

CPUE: Catch per unit of effort

DFO: Department of Fisheries and Oceans

FRCC: Fisheries Resource Conservation Council

GEAC: Groundfish Enterprise Allocation Council

IFMP: Integrated Fisheries Management Plan

ITQ: Individual Transferable Quotas

IVQ: Individual Vessel Quotas

MPA: Marine Protected Area

NAFO: Northwest Atlantic Fisheries Organization

PA: Precautionary Approach

RAP: Regional Advisory Process

RV: Research Vessel

SSB: Spawning Stock Biomass

SSR: Stock Status Report

TAC: Total Allowable Catch

TAGS: The Atlantic Groundfish Strategy

VPA: Virtual Population Analysis

ZAP: Zonal Assessment Process

200 Mile Fishing Zone and NAFO Fishing Boundaries